

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Middle Fabius River

Waterbody Segment at a Glance:

County: Lewis
Nearby Cities: Ewing
Length of impairment: 57 miles
Pollutant: Manganese
Source: Natural



State map showing location of watershed

TMDL Priority Ranking: Low

Description of the Problem

Beneficial uses of Middle Fabius River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption
- Whole Body Contact
- Boating and Canoeing
- Drinking Water Supply

Use that is impaired

- Drinking Water Supply

Standards that apply

Missouri Water Quality Standards in 10 CSR 20-7.031 Table A give 50 µg/L as the maximum amount of manganese allowed for Drinking Water Supplies. This is an aesthetic standard that seeks to protect a water supply against possible taste, odor and laundry staining problems caused by excessive amounts of manganese. Exceedence of this standard is not a threat to human health.

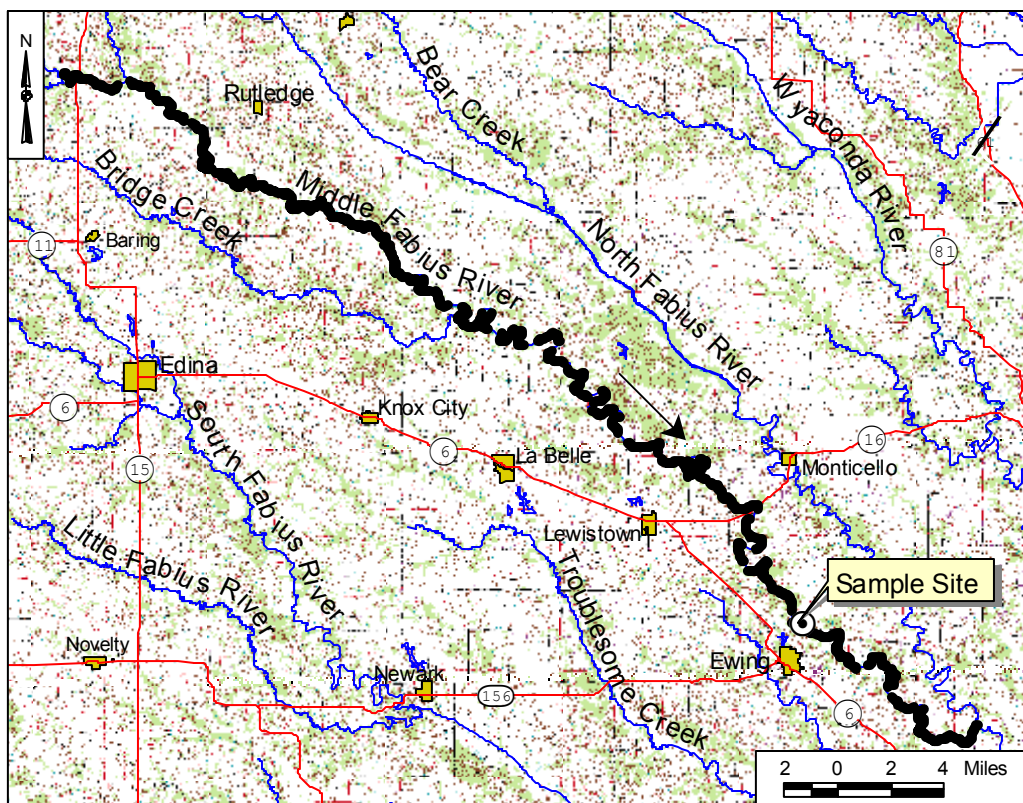
Background Information and Water Quality Data

Monitoring of the Middle Fabius River near Ewing, Missouri from 2000 through 2002 has shown an average level of dissolved manganese of 92 µg/L (micrograms per Liter or parts per billion), based on 10 individual samples. There are no known significant man-made sources of manganese in this watershed. The source of the manganese is believed to be natural weathering and erosion of earth materials (soils and subsoils) in this watershed. Several other streams in northeastern Missouri also have elevated levels of dissolved manganese.

Manganese does not present any human health hazards, but is responsible for offensive tastes and appearances in drinking water, as well as staining laundry and fixtures. It can react with tannins in coffee, tea and in other beverages, producing a black sludge, which affects both taste and appearance. Manganese causes a brownish-black staining of laundry, porcelain, dishes, utensils and glassware. Soaps and detergents do not remove the stains, and use of chlorine bleach can intensify the stains. Manganese can build up in pipelines, pressure tanks, water heaters and water softeners and causes equipment problems and energy cost increases due to mineral deposits.

A map of the affected portion of Middle Fabius River, the location of the sampling site and the water quality data are shown below.

**Impaired Segment of Middle Fabius River in Lewis County, Missouri,
Showing Sampling Site**



— — — — Impaired segment

—————> Direction of Flow

Site Name	Year	Month	Day	Dissolved Manganese (µg/L)
Middle Fabius River 1 mile NE of Ewing	2000	3	21	145
Middle Fabius River 1 mile NE of Ewing	2000	5	25	244
Middle Fabius River 1 mile NE of Ewing	2000	8	31	48
Middle Fabius River 1 mile NE of Ewing	2000	11	28	132
Middle Fabius River 1 mile NE of Ewing	2001	3	8	184
Middle Fabius River 1 mile NE of Ewing	2001	6	22	3
Middle Fabius River 1 mile NE of Ewing	2001	9	10	28.3
Middle Fabius River 1 mile NE of Ewing	2001	9	24	5.06
Middle Fabius River 1 mile NE of Ewing	2002	2	6	127
Middle Fabius River 1 mile NE of Ewing	2002	6	13	2.05
Mean				91.841
Frequency of Exceedence of WQ Standard				50%

For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

P.O. Box 176, Jefferson City, MO 65102-0176

1-800-361-4827 or (573) 751-1300 office

(573) 526-5797 fax

Program Home Page: www.dnr.mo.gov/wpscd/wpcp/index.html